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Psychiatric co-morbidities in patients with dilated cardiomyopathy

International Journal of Cardiology – Short Communication

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Dear Editor,

Various studies have investigated and reported on the association between physical and psychiatric conditions^{1,2}. Recently, research focussing on the link between cardiovascular disease and psychiatric conditions has been on the rise³. Carter et al³, found that one in four psychiatric patients also suffered from a cardiovascular co-morbidity. Whether these links are causative, or not, there is a need to quantify this data to provide the evidence on which better targeted, holistic care-pathways can be based.

It is well known that depression and anxiety are significant and commonly reported factors in heart failure⁴ and it has been shown that patients with non-ischaemic heart failure, such as hypertrophic cardiomyopathy (HCM)^{5,6} and dilated cardiomyopathy (DCM)⁷ experience emotional stress, anxiety and in some cases depression and other psychiatric co-morbidities. This is often attributed the fear of associated risk of sudden death and potential genetic risk to their own children^{5,8}. In addition, recent studies⁹ have shown an increasing trend in patients with psychiatric comorbidities alongside DCM, and have called for a lower threshold to both assess and detect these co-morbidities as they often go under-detected and under-diagnosed in hospital¹⁰.

In light of this and the increasing evidence of association between psychiatric conditions and cardiovascular disease, we investigated the prevalence of psychiatric co-morbidities and tendencies in patients with dilated cardiomyopathy (DCM) over a 14 year period. We do not believe any study has looked into DCM and the possible links to psychiatric conditions and tendencies over such a long period to date.

We compiled an entirely anonymous database of adult patients diagnosed with dilated cardiomyopathy across seven hospitals in the North of England, UK during the period 01/01/2000 to 31/03/2013. We analysed the data for prevalence of firstly psychiatric co-morbidities such as;

anxiety disorder, obsessive compulsive disorder, schizophrenia, schizoaffective disorder, bipolar disease, depression and dementia and secondly substance abuse and suicidal intent. We traced our patients with the ACALM (Algorithm for Co-morbidities, Associations, length of stay and Mortality) study protocol, which uses ICD-10 (International Classification of Disease, Version 10) and OPCS-4 (Office of population Censuses and Surveys Classification of Interventions and Procedures) procedure codes to correctly allocate patients for statistical analysis using SPSS Version 20.0. The prevalence data was assembled into five groups to aid analysis of trends over time. This methodology has been described and by our group and others previously^{1-3,9,11-23}.

Between the years 2000 and 2013, 929,552 patients were admitted, 710 of which (0.08%) were labelled with a diagnosis of dilated cardiomyopathy. The majority of the population were made up of male patients (69%) and the mean age was 54.9 years \pm 13.9 years(S.D). The population consisted of mainly Caucasians (77.2%), with a South Asian population of 7.87%, an Afro-Caribbean population of 2.88% and an unknown ethnicity in 8.43%.

Of these 710 patients with dilated cardiomyopathy, 9% (n=63) had other psychiatric conditions. We mainly found that in our cohort 4.65% (n=33) of patients had depression, 0.85% (n=6) of patients were diagnosed with dementia and a further 1.13% (n=8) suffered from schizophrenia. In addition to this, in 11% (n=81) of cases in our cohort, we found that patient suffered from some form of substance misuse with 4.08% (n=29) abusing alcohol and a further 6.34% (n=45) whom smoke tobacco.

Steptoe et al⁷ used the Hospital Anxiety and Depression (HAD)²⁴ in 99 cases and found 52% of his cohort fulfilled the criteria for possible anxiety disorder and in comparison to medical in-patients found that anxiety scores were significantly higher making the conclusion that DCM patients report higher levels of anxiety than their counterpart population. This finding was much higher than what

we observed in our study in which 1.13% (n=8) of our patients had anxiety. It is noteworthy for comparison that our study observed patients diagnosed with an anxiety disorder by a healthcare professional as opposed to a patient questionnaire.

In addition, Steptoe et al⁷ also found that 22% of his DCM cohort fulfilled the criteria for clinical depression, similar to the rate of depression found in coronary artery disease (CAD)⁴. In our study, in comparison we found that 4.65% (n=33) of our patients were suffering from clinical depression.

It is well known that alcohol is a common cause of DCM. Various theories have been proposed to establish its causative effect and pathogenesis, but mainly it remains the thought that the toxic metabolites of ethanol disrupts cardiovascular metabolism and that there is increased cardiomyocyte loss secondary to oxidative damage²⁵.

In addition, stress, anxiety and depression has been shown to affect the cardiovascular system by increasing activity on the sympathetic nervous system and the hypothalamo-pituitary axis which both help to regulate cardio-respiratory function²⁶,

On the contrary, it is believed that the combination of 1) psychiatric treatments effecting the cardiovascular system, 2) patients with depression tend to be less compliant with prevention of disease and intervention and 3) patients with psychiatric conditions subscribe to a lifestyle which can have negative effect on cardiovascular wellbeing by ingesting alcohol and tobacco, well known risk factors for cardiovascular disease, are the reasons for the correlation between psychiatric comorbidities and DCM.

Ultimately, it remains debatable whether these psychiatric conditions and tendencies represent a causative or correlative link. We did however find a steady increase in the abuse tobacco and

alcohol, and the diagnosis of depression in relation to our DCM patients during our 14 year period. We found that 1 in 10 patients with DCM suffer from a psychiatric co-morbidity and that 1 in 10 patients with DCM are suffering from some form of substance abuse.

We believe, that a holistic approach to the care of patients with DCM should be used, and that this holistic approach would fall short if it did not include focussed history expanding into a patient's use of recreational drugs, suicidal intent and psychiatric wellbeing in form of a history into psychiatric co-morbidities.

Table 1: Psychiatric co-morbidities in patients with Dilated Cardiomyopathy

	Prevalence of co-morbidity during the time period (%)					
	2000- 2002	2003- 2005	2006- 2008	2009- 2011	2012- 2013	Total in 14 years
n=	118	166	239	159	28	
<u>Psychiatric Condition</u>						
Anxiety disorder	0.85%	1.81%	1.26%	0.63%	0%	1.13%
Phobic disorder	1.69%	0%	0.42%	0%	0%	0.42%
Obsessive compulsive disorder	0.85%	0%	0%	0%	0%	0.14%
Schizophrenia	2.54%	0.60%	0.42%	1.89%	0%	1.13%
Schizoaffective disorder	0.85%	0%	0%	0%	0%	0.14%
Bipolar disorder	0%	0.60%	0%	1.26%	0%	0.42%
Depression	2.54%	4.82%	4.18%	6.92%	3.57%	4.65%
Dementia	0%	0%	1.67%	1.26%	0%	0.85%
<u>Psychiatric Tendency</u>						
Tobacco use	0.85%	2.41%	7.11%	10.06%	25.00%	6.34%
Alcohol use	1.69%	4.82%	4.18%	4.40%	7.14%	4.08%
Cannabis use	0%	0%	0.42%	0%	0%	0.14%
Opioid use	0%	0.60%	0.84%	0%	0%	0.42%
Stimulant use	0%	0.60%	0%	0%	0%	0.14%
Cocaine use	0%	0%	0.42%	0%	0%	0.14%
Overdose	0%	0%	0%	0.63%	0%	0.14%
Suicide attempt	0%	0%	0%	0.63%	0%	0.14%

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